

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-052209

(43)Date of publication of application : 26.02.1999

(51)Int.Cl.

G02B 7/04

G02B 7/10

G02B 13/18

G02B 15/20

(21)Application number : 09-203329

(71)Applicant : CANON INC

(22)Date of filing : 29.07.1997

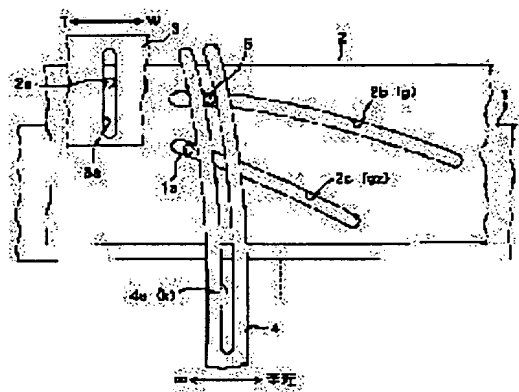
(72)Inventor : ENDO HIROSHI

## (54) LENS DRIVING DEVICE AND OPTICAL EQUIPMENT PROVIDED THEREWITH

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To realize zooming and focusing mechanisms by which focus moving amount at the time of zooming is kept in allowable range with simple structure by driving a lens along the synthetic line of three cam curves at the time of zooming.

**SOLUTION:** When an operation ring for focusing is operated to be rotated, a focus pin 5 moves in an optical axis direction along both a key cam 4a and a focus cam 2b, that is, by the synthetic action of the key cam 4a and the focus cam 2b in a 6th lens group. When an operation ring for zooming is operated to be rotated, a zoom cam barrel 3 rotates and a focus cam barrel 2 is rotated in the same direction through a coupling pin 2a. At such a time, the cam barrel 2 moves in the optical axis direction by the fitting action of a correction cam 2c with a fixed pin 1a, and the 6th lens group moves in the optical axis direction by the fitting action of the focus cam 2b with the focus pin 5. Namely, the synthetic action of the focus cam 2b, the correction cam 2c and the key cam 4a exerts on the 6th lens groups.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office